

# GOLD CARATAGE SYSTEM

## The Caratage System

Any caratage value lower than 24 is a measure of how much gold there is in the jewellery gold alloy. Thus 18 ct is 18/24ths of 100% gold = 75.0% gold. In fineness terms, this is described as 750 fineness, i.e. 750 parts of gold per thousand parts. The table below gives the various caratages and their equivalent gold content in percent or in fineness terms as recognized by international standards. This is not always exactly the mathematical value! For example, 22 carat is mathematically 22/24ths x 100 = 91.666% but the accepted international standard is 91.60%

Definition of Caratage in gold content for recognized international standards

Carats/Karats	Fineness, ‰	Gold content, %	Comments
24	999	99.9	-
24	990	99.0	Minimum allowed
22	916	91.6	Indian subcontinent
21	875	87.5	Arabic countries
(19.2)	800	80.0	Standard in Portugal
18	750	75.0	Standard caratage
14	585	58.5	583/58.3% in USA
10	417	41.7	Minimum in USA
9	375	37.5	U.K. standard
8	333	33.3	Minimum Germany

Many countries only allow certain caratages of gold jewellery to be sold. For example, in the United Kingdom, one can make and sell 9, 14, 18 and 22 carat gold jewellery but not 12 carat gold as the latter is not a recognized caratage standard by law. In some countries, jewellery lower than 12 carats (50% gold or 500 fineness) cannot be described as gold.

The advantage of making jewellery in caratages lower than 24 ct, apart from price, is the wide range of colour that can be achieved, from so-called green, pale yellow, yellow, rose/pink to red as well as white, depending on the balance of other alloying metals used. The lower the caratage, the wider range of colour is possible (see Colours of Gold). Additionally, properties such as strength and hardness are improved over pure gold, leading to improved wear and scratch resistance and less liable to distortion and damage.

The caratages of jewellery allowed by law varies from country to country (see below for link to Table of national fineness standards). In the U.K., for example, the following caratages are allowed: 9 (375), 14 (585), 18 (750), 22 (916), and 24 (990 and 999). In many countries, a large range of caratages is legally allowed but only a few are in common use. The dominant caratage also varies as shown in the next table:

### Typical Caratages of Gold Jewellery

Region	Typical Caratage (fineness)
Oriental East (China, Hong Kong, Taiwan)	24 carat 'Chuk Kam' (99.0% min)
India & subcontinent	22 carat (91.6%)
Arabic countries in Gulf region	21 carat (87.5%)
Europe - Southern */ Mediterranean	18 carat (75.0%)
Europe - Northern, USA, etc**	8-18 carat (33.3 - 75.0%)

- Portugal - 19.2 carat (80.0%)
- \*\* For example, Germany - 14 ct with 8 & 18 carat;
- UK - 9 ct with 18 and 22 ct;
- USA - 14 ct with 10 & 18 carat

Some countries insist that there is no negative tolerance allowed (e.g. UK, where 18 carat is 750 fineness minimum) but in others a negative tolerance, typically 3 parts per thousand, is allowed (e.g. in USA, a fineness of 747 would be accepted as 18 carat). This causes difficulty in the mutual recognition of national marks/hallmarks, a problem raised in the European Union by the Houtwhipper ruling recently. Thus a piece of jewellery assaying at 747 fineness would pass in the USA as 18 carat but fail in the U.K

### **The Caratage (Karatage) System For Gold Jewellery**

Gold jewellery/ jewelry is usually described in terms of caratage (karatage), which is an indication of its gold content, for example 18 carat or 18K. Alternatively, the gold content can be described in terms of 'fineness', which is the gold content expressed in parts per thousand, for example 750 (which is 18 carat or 75.0% gold).

Since the price paid by the purchaser for gold jewellery is based on the amount of gold in it, it is important for the consumer to know how many carats (in USA – karats) of gold there is in the piece. Most jewellery worldwide is marked with the caratage or fineness. This may be part of a Hallmark on the jewellery (see Assaying & Hallmarking for the definition of a mark and hallmark).

Pure gold ('fine gold') is 24 carats (karats) and so 24 carats is theoretically 100% gold. In Chinese, it is also known as "Chuk Kam", meaning 'pure gold' and is defined as 99.0% gold minimum. Thus, there is a 1.0% negative tolerance allowed in this case.